

Examples of Actual Medicine Take-back Program Costs

	2009 Actual Costs (US Dollars)	2011 Actual Costs (US Dollars)	2011 Actual Costs Voluntary Medicine Take-Back Programs in King and Snohomish Counties		
	B.C. Producer Provided Program	B.C. Producer Provided Program	Snohomish County - Law Enforcement	King County - Bartell Drugs	King County - Group Health
Number of Drop Sites	942 Community Pharmacy Drop Sites	1.033 Community Pharmacy Drop Sites	28 Law Enforcement Drop Sites	12 Retail Pharmacy Drop Sites	12 Clinical Pharmacy Drop Sites
Pounds of Medicines Collected	112,854 pounds collected Prescription & OTC medicines (Includes controlled substances)	151,896 pounds collected Prescription & OTC medicines (Includes controlled substances)	4,620 pounds collected Prescription & OTC medicines (Includes controlled substances)	6,826 pounds collected Prescription & OTC medicines (no controlled substances)	9,951 pounds collected Prescription & OTC medicines (no controlled substances)
Cost Categories					
Secure Metal Drop Boxes	N/A, pharmacists collect pills behind counter	N/A, pharmacists collect pills behind counter	N/A, purchased in previous year	N/A, purchased in previous year	N/A, purchased in previous year
Collection Supplies (boxes, tape, etc.)	cost of pharmacy collection totes not tracked	Detailed cost info not obtained for 2011.	\$3,612	\$1,974	\$811
Costs for Consolidation of Medicines at Central Collection Site	\$54,009		\$37,362 labor costs for intensive "valet" service model	\$5,175 labor for warehouse manager	\$15,184 labor costs for post-collection screening
Warehousing of Medicines Prior to Disposal	\$121,482		not tracked; medicines stored at Sheriff's Office	not tracked; medicines stored at central pharmacy warehouse	not tracked; medicines stored at central pharmacy warehouse
Transportation To Disposal Facility & Disposal	\$100,161		\$3,250 via law enforcement escort to Covanta WTE Incinerator in Brooks, OR	\$6,697 via Clean Harbors to Haz Waste Incinerator in Aragonite, UT	\$22,457 via PSI Waste Systems, Inc. to WTE Incinerator in Spokane WA
Administration	\$75,175		No itemized separately; included in costs of labor for consolidation of medicines	Not itemized separately.	Not itemized separately.
Program Promotion	unknown		\$6,911	N/A, no dedicated promotion funds.	N/A, no dedicated promotion funds.
Total Actual Costs	\$350,827 US	\$516,800 US	\$51,135	\$13,846	\$38,452
Sources	Data obtained from annual reports of the Post-Consumer Pharmaceutical Stewardship Association in British Columbia, and from personal communications with Ginette Vanasse, Executive Director.		Compiled by the Pharmaceuticals Project of the Local Hazardous Waste Program in King County from data shared by the Snohomish County Partnership for Secure Medicine Disposal, Bartell Drugs, and Group Health. July 27, 2012.		

	2009	2011	Voluntary Medicine Take-Back Programs in King and Snohomish Counties		
	B.C. Producer Provided Program	B.C. Producer Provided Program	Snohomish County - Law Enforcement	King County - Bartell Drugs	King County - Group Health
Other costs not included			Does not include 2009 start-up expenses for the purchase of secure metal containers with locks (\$19,186) and development of start-up promotional materials (\$11,852). Does not include minimal labor time for officers to direct residents to drop boxes in station lobby. Disposal of medicines at Covanta's WTE facility is currently essentially no cost to law enforcement under a Covanta promotion that provides disposal for municipal medicine take-back programs for a minimal fee.	Does not include start-up expense in previous years for purchase of secure steel drop boxes. Does not include minimal labor time for pharmacists to screen medicines before customers put into box.	Does not include start-up expense in previous years for purchase of secure steel drop boxes. Does not include labor for maintenance of boxes by clinical pharmacists.
Additional Notes			Cost for supplies is based on \$15.50 per box cost and the number of boxes disposed. All other costs are best estimates by Snohomish program staff because costs have not been itemized exactly. To date, DEA has paid for medicine disposal from Snohomish law enforcement programs through short term National Prescription Drug Take-Back Days. The amount of \$3,250 for 2011 disposal costs is an estimated cost for law enforcement labor & transport, and the disposal fee if the Snohomish County Sheriff's Office had disposed of the drugs at the Covanta WTE facility in Brooks, Oregon. That facility currently offers disposal to municipal entities for a minimal flat fee.	Bartell Drugs operates medicine take-back at 24 retail pharmacies in three counties. King County information was obtained by taking total data and multiplying by 0.6 to calculate the percentage of medicines collected and costs attributable to drop sites in King County. The 0.6 multiplier was derived by analyzing disposal receipts from Clean Harbors which provided disposal volumes by county and total disposal costs.	Group Health operates medicine take-back at 25 clinical pharmacies in five counties. King County information was obtained by taking total data and multiplying by 0.54 to calculate the percentage of medicines collected and costs attributable to drop sites in King County. Group Health conducted a study in July 2011 that sorted and weighed all King County boxes separately from all other counties. Data show for the month of July, King County was 54% of the weight of statewide disposal.

King County-wide Medicine Take-Back System Cost Estimate					
For discussion purposes. Provides estimated expenditures in anticipated cost categories for a residential medicine take-back system using drop-off locations.					
Assumptions		<p>Notes:</p> <p>2.50% = assumed annual inflation rate each year</p> <p>1,957,000 = King County population. Source: WA OFM, April 2012 http://www.ofm.wa.gov/pop/april1/default.asp</p> <p>\$1,166,138,847 =estimated total dollars spent on medicines in King County annually (prescription and over-the-counter)</p>			
80 Drop Sites	1 site for each of 39 cities, plus 32 additional sites for each additional 30,000 population in the 7 cities with populations > 60,000, plus 9 additional sites for every additional 30,000 population in unincorporated areas.				
48,925 Estimated Pounds of Medicines Collected	Assume collection of 0.025 pounds per capita in Year 1; similar to return rate for B.C. program in 2009. Increase pounds collected by 25% in Year 2 as public awareness increases.				
Cost Category	Assumptions	fixed or variable cost?	One-time, Start-up Costs	Year 1 Costs	Year 2 Costs
Secure Metal Drop Boxes	\$700 each for secure drop box with 2 locks (e.g. from dVault)	Fixed, one-time expense per drop site	\$56,000	-	-
Collection Supplies	\$200 per drop site per year for boxes, tape, security seals, etc...	Fixed, volume driven per drop site	-	\$16,000	\$16,400
Consolidation of Medicines at Central Warehouse	Monthly transport from each drop site to central warehouse. Labor provided by program staff, see salaries under Administration. Transportation cost estimated at \$50 per trip. Includes pharmacist time for sorting materials @ \$60 per hour, 8 hours per month.	Variable, depends on number of drop sites and frequency of consolidation trips. Pharmacist time for sorting materials is not needed if medicines are screened at point of collection.	-	\$53,760	\$55,104
Law Enforcement Escort for Consolidation (if required)	Law enforcement escort @ \$75 per hour; 2 hours per trip from each drop site to central warehouse.	Variable. Law enforcement chain of custody is currently required by DEA, but may not be required under new regulations DEA is developing for take-back of controlled substances.	-	\$12,000	\$12,300
Warehousing of Medicines	Warehouse rental for storage, estimated from 2009 costs from B.C. program. Amount of warehousing needed depends on program design.	Fixed, annual	-	\$125,000	\$128,125
Transportation to Final Disposal Facility	24 foot truck @ 2 day rental =\$320 from Budget Rental Truck for 560 mile round trip (ie to Spokane or Brooks, OR(August 2012 rental rate). Max payload 12,000 pounds. 5 trips per year.	Variable, depends on volume of medicines, on number of trips, and on disposal service (if used)	-	\$1,600	\$1,640

Cost Category	Assumptions	fixed or variable cost?	One-time, Start-up Costs	Year 1 Costs	Year 2 Costs
Law Enforcement Escort to Final Disposal Facility (if required)	Law Enforcement escort for 5 trips per year; 2 sheriff deputies at \$75 per hour each (incl. benefits & overhead), assume 3 hours loading + 10 hours per round trip to Spokane or Brooks, OR WTE facilities. Plus overnight lodging @\$200 each.	Variable. Law enforcement chain of custody is currently required by DEA, but may not be necessary under new regulations to be issued for take-back of controlled substances.	-	\$11,750	\$12,044
Disposal	\$1 per pound, plus \$1,000 "witnessed burn" fee for each of 5 trips to disposal facility. "Witnessed burn" fees are for controlled substances as part of the DEA's requirements for continuous chain of custody. Actual disposal costs will vary depending on facility used; current examples: \$1 per lb for Clean Harbors disposal at Utah Haz Waste Facility (includes transportation). \$0.10 per lb for special waste disposal at Spokane WTE facility.	Variable, depends on volume of medicines, on disposal facility, and on disposal service (if used).	-	\$53,925	\$67,810
Administration	Assumes 2 FTE to operate program and manage any contracted services. Executive Director @ \$80,000 annual salary + 30% benefits & Program Manager @ \$50,000 annual salary + 30% benefits.	Fixed, annual	-	\$169,000	\$173,225
Program Promotion	website: development and maintenance	Start-up and Fixed, annual	\$20,000	\$10,000	\$10,250
	1-800 number. \$20 per month for phone line + \$30,000 annual salary + 30% benefits for staff to answer phone.	Fixed, annual	-	\$39,240	\$40,221
	promotion planning; materials development, printing, and distribution.	Start-up and Fixed, annual	\$10,000	\$30,000	\$30,750
	annual outreach evaluation, e.g. public awareness survey	Fixed, annual	-	\$10,000	\$10,250
TOTAL ESTIMATED COSTS			\$86,000	\$532,275	\$558,119
			One-time, Start-up Costs	Year 1 Costs	Year 2 Costs
Percent Take-back Costs Compared to Total Medicine Sales in King County			0.0074%	0.0456%	0.0479%
Take-back Costs are equivalent to 1 penny per this amount in medicine sales			\$135.60	\$21.91	\$20.89

King County-wide Medicine Take-back System Cost Estimate: *Comparison to Medicine Sales*

Estimated Annual Medicine Sales in King County (from 2011 data)
<p>\$1,166,138,747 in medicine sales (roughly 90.5% Rx and 9.5% OTC)</p> <p>~ 33,477,789 containers of medicines sold (roughly 67% Rx and 33% OTC)</p> <p>Rx = prescription. OTC = over-the-counter</p> <p>The above figures underestimate OTC sales because available industry data does not include Wal-Mart's sales of OTC drugs.</p>

	Year 1 One-time Start-up Costs (secure drop boxes, website & materials development)	Year 1 Operating Costs	Year 2 Operating Costs (assumes 25% increase in medicines collected)
King County-wide Medicine Take-back Program Cost Estimate (see spreadsheet for details)	\$86,000	\$532,275	\$558,119
Costs to Producers to Provide Medicine Take-back as a Percentage of Annual Medicine Sales	0.0074%	0.046%	0.047%
Costs to Producers to Provide Medicine Take-back Per Container of Medicines Sold (not a direct charge or fee to residents/customers)	0.25 pennies per prescription or per container of OTC medicine.	1.58 pennies per prescription or per container of OTC medicine.	1.67 pennies per prescription or per container of OTC medicine.

King County-wide Medicine Take-back Program Cost Estimate is online at:

<http://www.kingcounty.gov/healthservices/health/BOH/~media/health/publichealth/documents/boh/MTB/CostEstimatesMTBPrograms.ashx>

Summary of Medicine Sales in King County is online at:

<http://www.kingcounty.gov/healthservices/health/BOH/~media/health/publichealth/documents/boh/MTB/2011MedicineSalesLeftoverEstimate.ashx>

Medicine Sales in King County, WA State, and U.S. (2011) and Estimated Amount of Leftover Medicines

In King County

2011 Population 1,969,722 (28.8% of WA population)

Dollars spent

Estimated dollars spent on prescription drug sales in 2011 ¹	\$ 1,055,605,327
Estimated dollars spent on over-the-counter medicines in 2011 ²	\$ 110,531,520
Estimated total dollars spent on medicines in 2011 in King County	\$ 1,166,136,847

Number of containers

Estimated number of prescription containers sold ¹	22,424,637
Estimated number of over-the-counter containers sold ³	11,053,152
Total number of containers of medicine sold in 2011	33,477,789
Estimated number of containers that go unused each year in King County ⁴	11,148,104

In Washington

2011 Population 6,830,038 (2.2% of US population)

Dollars spent

Total dollars spent on prescription drug sales at retail pharmacies ¹	\$ 3,665,296,275
Estimated dollars spent on over-the-counter medicines ²	\$ 383,790,000
Total dollars spent on medicines in 2011 in Washington	\$ 4,049,086,275

Number of containers

Number of prescription containers sold at retail pharmacies ¹	77,863,323
Estimated number of Over-the-counter containers sold ³	38,379,000
Total number of containers of medicine sold in 2011 in Washington	116,242,323
Estimated number of containers that go unused each year in Washington ⁴	38,708,694

In United States

2011 Population 311,591,917

Number of prescriptions filled at retail pharmacies ¹	3,764,698,318
Total dollars spent on prescription drug sales at retail pharmacies ¹	\$ 227,551,806,436
Total dollars spent on over-the-counter medicines ²	\$ 17,445,000,000
Total dollars spent on medicines in 2011 in United States	\$ 244,996,806,436

Medicine Sales in King County, WA State, and U.S. (2011) and Estimated Amount of Leftover Medicines

Estimate of Unused Medicine Containers

“About one-third of medicines sold to households in Washington go unused every year”

This statement from the Take Back Your Meds website describes the estimated amount of medicines that are unwanted or expired in households annually. Empirical data is not currently available on the actual number of medicines that go unused every year, but various studies have estimated the amount. This estimate is based on a review of available data sources and estimates, including the following study: Bush, P.J., Sanz, E.J. & Garcia, M. (1996). *Section II: Cross cultural reports. Medicines at Home: the Contents of Medicines Cabinets in Eight Countries*. In Children, Medicines, and Culture. New York, Pharmaceutical Products Press.

Other Estimates of Amount of Leftover Medicines

“Of the more than 4 billion prescriptions written yearly, it is estimated that some 40% go unused.”

Stated on the DisposeMyMeds.org website, a program of the National Community Pharmacists Association that provides information on medicine take-back programs at community pharmacies. Partners listed on the website include the following pharmaceutical companies: Apotex, AstraZeneca, King Pharmaceuticals, and Mallinckrodt.

“For our analysis, it was assumed that 10% of medicine purchased by the patient is unused”

Stated on PhRMA slideset presented by Douglas S. Finan, GlaxoSmithKline; Matthew D. Garamone, Pfizer Inc; and James Jahnke, Schering-Plough Corporation at the Fourth Annual Unused Drug Return Conference (Fall, 2007 in Portland, Maine). In other statements, PhRMA estimates that 3 percent (2.8 million pounds) of prescription medications go unused by U.S. consumers annually (see this statement in report from King Pharmaceuticals http://www.takebacknetwork.com/pdf/Safe_Disposal_of_Unused_Controlled_Substances.pdf).

Sources:

1. Data for prescription medicine sales were obtained from the Kaiser Family Foundation's statehealthfacts.org website, see 2011 Washington State data for prescriptions filled and sales dollars at: <http://www.statehealthfacts.org/profileind.jsp?cat=5&sub=66&rgn=49>. Available data is only for prescriptions filled at retail pharmacies, which includes chain pharmacies, independent pharmacies, food stores and mass merchandisers. Prescriptions filled by mail order are not reported. Analysis by Pembroke Consulting found that 17.5% of prescriptions were purchased through mail-order pharmacies in 2009, see <http://www.drugchannels.net/2010/08/new-data-on-pharmacy-industry-market.html>.
Data for the U.S. and Washington State is taken directly from the Kaiser Family Foundation website. They report Washington State is 2.1 percent of U.S. for the total number of retail prescriptions filled at pharmacies, and 1.6 percent of U.S. for total retail sales for prescription medicines sold. King County figures were calculated on a per capita basis from the state data: King County's population is 28.8 percent of Washington's total population.
2. Data for over-the-counter (OTC) medicines sales were obtained from the Consumer Healthcare Products Association's website, see http://www.chpa-info.org/pressroom/Retail_Sales.aspx for 2011 data. The data reported is total dollars spent on OTC medicines in the U.S., which includes personal care products that are regulated as OTC medicines such as toothpaste, sunscreen, and medicated shampoos. The 2011 data reported by CHPA does not include Wal-Mart's sales for OTC medicines.
3. Data for the number of over-the-counter (OTC) medicine containers (or units) sold in the U.S. is not readily available to our knowledge. This value was calculated from U.S. sales data for OTC medicines reported by the Consumer Healthcare Products Association (see source note #2) by assuming the average cost of each container of OTC medicines is \$10. Washington State figures were adjusted from this U.S. calculation, with Washington State's 2011 population at 2.2 percent of total U.S. population. King County figures were adjusted from the Washington State calculation, with King County's population at 28.8 percent of Washington's population.
4. The estimated amount of leftover containers of medicines was calculated using total number of containers and estimate of one-third of medicines sold to households go unused every year (see statement on page 2, above).
5. Population numbers for 2011 were obtained from U.S. Census Bureau <http://quickfacts.census.gov/qfd/states/53000.html>. United States: 311,591,917. Washington State: 6,830,038. King County: 1,969,722.